National Institute of Environmental Health Sciences

Association of birth weight and length with air temperature, sunlight, humidity and rainfall in the city of Warsaw, Poland

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Abstract:

Several studies have shown the month of birth effect on birth weight and height of children. The mechanism of this phenomenon is not fully explained. Using data from Warsaw hospitals, the influence of four climatic factors (temperature, sunlight, humidity and rainfall) on birth outcomes was studied. The sample consisted of 10,631 neonates (5450 boys and 5181 girls) born between May 2004 and April 2005. Individual values for birth weight and length were standardised on the overall mean and standard deviation for all subjects, separately for each sex. Differences in means of Z-score birth outcomes between months, seasons and semi-annual periods of birth were assessed by one-way analysis of variance, separately for each sex. The relation between average values of four atmospheric factors and average neonatal outcomes for each month of birth was assessed by a weighted Spearman rank correlation. The results revealed significant differences in average Z-scores of neonate weight and length between months of birth for boys and girls. Significant seasonal variation in Z-scores means was only found for birth length in boys. The correlation between four atmospheric factors during pregnancy and birth length was the highest for boys and occurred in the second trimester. Second trimester of fetal growth is the period most sensitive to influences of climatic factors.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Precipitation, Solar Radiation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Poland

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Developmental Effect

Developmental Effect: Reproductive

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content